



CORDELL BANK NATIONAL MARINE SANCTUARY SANCTUARY ADVISORY COUNCIL

MEETING MINUTES

April 20, 2016

9:00 AM

Bodega Bay Fire Protection District, Bodega Bay, CA

Note: The following meeting notes are an account of discussions at the meeting of the Sanctuary Advisory Council for Cordell Bank National Marine Sanctuary (CBNMS). The council is an advisory body to the sanctuary superintendent. The opinions and findings of this publication do not necessarily reflect the position of CBNMS and the National Oceanic and Atmospheric Administration (NOAA).

Call to Order/Roll Call/Welcome (George Clyde)

George Clyde, Advisory Council Chair, called the meeting to order at 9:15 AM and welcomed everyone. Lilli Ferguson, advisory council coordinator, then called roll.

Members and Alternates Present:

George Clyde (Chair; Community-at-Large – Marin County)
Mike Cummings (Community-at-Large - Marin County Alt.)
Bill Wolpert (Community-at-Large-Sonoma County)
Sarah Hameed (Community-at-Large – Sonoma County Alt.)
Lance Morgan (Conservation)
Rachel Bergren (Education Alt.)
Richard Ogg (Fishing)
Noah Wagner (Fishing Alt.)
John Berge (Maritime Activities Alt.)
Jaime Jahncke (Research)
Tessa Hill (Research Alt.)

Agency Representatives and Alternates Present:

none

Members of the CBNMS staff were also present:

Dan Howard (Sanctuary Superintendent)
Lilli Ferguson (Resource Protection Specialist and advisory council coordinator)
Michael Carver (Resource Protection Coordinator)
Danielle Lipski (Research Coordinator)
Jennifer Stock (Education and Outreach Coordinator)

Review and Approve Agenda (George)

The agenda was reviewed and unanimously approved by the advisory council

Review and Approve November Meeting Minutes (George)

The February 25, 2016 meeting minutes were reviewed, and were unanimously approved by the advisory council.

Sanctuary Superintendent's Report (Dan Howard)

- Dan recognized Tessa Hill, Ph.D. for having received a Presidential award. She explained it was an early career award for scientists and engineers, and that 100 people were honored. A ceremony will be held in two weeks at the White House.

- The San Francisco International Ocean Film Festival was well received, with most sessions full, and the gala event sold out. The student film competition had 110 submissions from 5 or 6 countries. He provided an overview of some of the notable films.
- CBNMS did not get full funding through the Office of National Marine Sanctuaries (ONMS) for the Applied California Current Ecosystem Studies (ACCESS) this year, but the West Coast Region office will cover the shortfall, paying for days on the FULMAR. Two cruises will be on the FULMAR, and one on the SHIMADA.
- Dan was in Chile for a week with others from NOAA, as part of a California-Chile cooperative agreement. They met with many of the same Chileans who had made a visit to our area in 2012. They toured parks, small fishing villages and marine protected areas (MPAs). They ended at La Serena, where an international MPA symposium will be held next year. The ocean environment there is similar to California's, and their MPAs are similar as well, in terms of the issues and management. Long term, there will be some sister site relationships, including possibly with CBNMS, and communications between California and Chile. The Chileans are drafting a cooperative plan for the future. Chile is part of an international consortium working to establish MPAs around the world and has signed on to protecting 10 % of its waters as MPAs by 2020. There is some talk of bringing Mexico into the conversation too. Data collection may not be done as extensively as it is here; they do not have as large a network of university and government scientists as in the U.S. Dan thought perhaps sister site linkages could be created based on the fact that pink-footed shearwaters reproduce on two offshore islands in southern Chile and forage in all California sanctuaries in their winter. The part of the country they toured is not really where the pink footed shearwaters are, however. He can present the Chilean draft cooperative plan, once received, to the advisory council. He would want to have benefits for both sites if a sister sanctuary connection was created.
- There is a vacancy announcement out for the ONMS Director position. NOAA hopes to fill the position by late summer. Dan will provide the announcement to Lilli, to send to the advisory council.

Update on US Coast Guard (USCG) Wastewater and Training Discharges in CBNMS and GFNMS (Dan)

- Recently, ONMS decided to hold a public scoping period to get input (information and comments) from community members, coastal residents, people inland, government agencies, and any other interested parties for a draft environmental assessment about USCG discharges of sewage, graywater, and materials during training. There is a regulatory exemption for emergencies now, but not for normal operations and training. The USCG has concerns about their operations, including enforcement, being possibly inhibited now that they have to transit the expanded sanctuaries, and do not have the capacity to hold sewage and graywater. The USCG proposes allowing training discharges from small arms and search and rescue trainings only. USCG is exempt from the discharge regulations right now in the CBNMS and Greater Farallones National Marine Sanctuary (GFNMS) expansion areas, and that exemption will be extended for six more months. NOAA is in the process of discussing how to protect the sanctuaries and help the USCG meet mission goals.
- Three scoping meetings will be held, and a *Federal Register* notice about scoping and the ways to submit comments will be published soon. We will provide the notice to the advisory council. The ways are: at one of three meetings (May 10 – Sausalito; May 11 - Bodega Bay; and May 12 – Gualala); electronically, on Regulations.gov; and by mail, with comments to be received by the end of May.
- NOAA could take action with respect to these USCG discharges in various ways, including changing the regulations or issuing a permit to allow the discharges in part or all of the two sanctuaries, or to not allow these discharges at all. NOAA is seeking public comment on the best way to address the need for the USCG to continue operating in CBNMS and GFNMS while continuing to protect them, and information on potential impacts from the discharges on resources and human uses. Comments on these topics would contribute to the environmental analysis. Examples of information that could be useful include: historic salmon and crab fishing areas, oceanographic features that tend to accumulate prey and draw upper level predators, and vessel traffic patterns after leaving the shipping lanes.

- Scoping is just one part of the draft timeline for completing analysis of impacts from Coast Guard discharge. The draft environmental assessment will be released for public comment, and possibly a proposed rule. A final plan could be out in about a year.
- There have been discussions at ONMS about how this issue could be handled at other sanctuaries.
- The advisory council may make recommendations either at a joint meeting with the GFNMS advisory council or at a regular CBNMS advisory council meeting. A joint meeting is planned for August, and the next CBNMS advisory council meeting for November.

CBNMS Research, Education and Resource Protection Reports (Danielle Lipski, Jennifer Stock, and Michael Carver)

- Research: Danielle Lipski, CBNMS Research Coordinator, announced there is an ONMS Conservation Series report out on the results of the 2014 remotely operated vehicle (ROV) benthic characterization surveys in then-proposed expansion areas of CBNMS and GFNMS; it is posted on the ONMS and CBNMS websites. Over six days on the FULMAR, they did nine transects at an area near Bodega Canyon and 11 transects at an area called “the Football.” She reviewed the habitat types and species observed. A new coral species was discovered and has now been described and named by Gary Williams and his colleagues, *Swiftia farallonesica*. This work has already been used to inform management efforts on Essential Fish Habitat and future ROV survey planning.
- CBNMS did a separate ROV survey in 2014 on Cordell Bank. The image analysis is complete. CBNMS hopes to have the report on this work out by the end of the year.
- Dani is working with others to plan a ROV workshop, to develop a benthic analysis sampling strategy.
- Ocean Exploration Trust’s research vessel, the Nautilus, (Bob Ballard’s boat) is conducting a cruise all along the West Coast this summer; one dive in CBNMS, in a deep part of Bodega Canyon, is planned for June 22. This is expected to be a two year mission.
- The ACCESS cruises are planned for May 14-22, on the NOAA ship, BELL M. SHIMADA; and July 18-26 and September 17-23 on the FULMAR. Dani is the cruise leader for the FULMAR cruises. Advisory council members who might like to go out one day should let her know; typically, in each cruise, one or two days are best for having guests.
- Dani also gave highlights of the 2015 and 2016 hypoxia monitoring work in CBNMS.
- Education: Jennifer Stock, CBNMS Education and Outreach Coordinator, showed a Cordell Bank “Earth is Blue” video; it is on the ONMS web page.
- The Nautilus scientists do live feeds on the internet, so people can tune in to what the ROV is seeing. Jenny is exploring doing a Nautilus ship to shore event with a live interview, possibly with the Oakland Museum.
- A teacher from Sacramento will participate in the May ACCESS cruise.
- The lighthouse Visitor Center is done and the public opening will be June 8, and the advisory council has been invited to attend. There will be a social media push to get public out there once it is open.
- April 22, Earth Day, Jenny will do an albatross bolus dissection Cordell Bank gallery at the Oakland Museum, at 5:30 PM. At 7 PM ocean films will be shown in the theater.
- On April 30, with the Sonoma Environmental Education Collaborative, Jenny will be doing activity for kids, for Dia de las Niñas; she and Leslie Adler-Ivanbrook are doing a beach activity together.
- June 25 is Get into Your Sanctuary Day; Jenny will do a beach campfire at Doran Beach. Lilli will send a flier to the advisory council about it, and Jenny asked that the advisory council help promote the event.
- With an Every Kid in a Park grant, she is bringing Sonoma County 4th graders to the beach. She has done some field trips already and has four more to go. She has done some advance work with the kids prior to the trips to give them a sense of place.
- With money from ONMS, some outreach materials, such as lighthouse exhibits and the photo exhibit, will be translated into other languages.
- July 30 is the Point Reyes National Seashore Association Field Institute boat trip to Cordell Bank.

- Resource Protection: Michael Carver, CBNMS Resource Protection Coordinator, gave an overview of a consultation ONMS and National Marine Fisheries Service's Northwest Fisheries Science Center (NMFS, NWSC) are engaged in, pursuant to Section 304(d) of the National Marine Sanctuaries Act, on, related to seafloor habitat protection and NMFS's impacts to the seafloor within West Coast sanctuaries. Michael reviewed the CBNMS Essential Fish Habitat (EFH) areas, established by the Pacific Fishery Management Council. EFH Conservation Areas can be closed to certain types of fishing. The Cordell Bank Biogenic EFH Conservation Area surrounds Cordell Bank, and the bank is protected from all bottom contact gear via a separate EFH Conservation Area. The Biogenic EFH Conservation Area serves as a reference area to compare with other soft bottom areas that are open to commercial bottom trawling. ONMS, for CBNMS, requested a reference area where research trawling would be prohibited, so an area of contiguous soft and hard bottom would be relatively undisturbed for study of sanctuary ecosystem dynamics. There have been letters back and forth on this consultation to address ONMS and NMFS concerns, and a meeting with NMFS is upcoming.
- Regarding the voluntary Vessel Speed Reduction (VSR) project from May-November in the San Francisco shipping lanes, Dani did an analysis of the vessel speed data. She looked at large vessels of greater than 300 gross tons, for which we had contact information, and which had five or more transits during the VSR. About 19% of them were going slow when the VSR was in place; the others were not slowing down, for a variety of reasons. Michael followed up with the shipping industry contacts for those vessels and communicated the number of transits, how fast the vessels were going, etc. He is now getting responses back, including why some vessels did not adhere to the recommendations. In next steps, the 2016 voluntary VSR will be announced, and the vessel data gathered again, for continued evaluation of the adherence to the voluntary VSR and the spatial and temporal overlap of vessels and whales. He would also like to have a program in the Bay Area with the Air Pollution Control District to incentivize speed reductions, as has been done for the lanes at Channel Islands National Marine Sanctuary. Finally, another next step is to evaluate the economic impact of the VSR.
- Lilli, CBNMS permit coordinator, briefly reviewed the list of current sanctuary permits, issued for activities in CBNMS that would otherwise be prohibited by the regulations. The Coastal Data Information Program buoy (under permit), is now back on station. A permit to NMFS for the West Coast groundfish research trawl surveys in West Coast national marine sanctuaries is awaiting the applicant's signature.

Ocean Acidification, Deep Sea Corals, and Implications for CBNMS (Tessa)

- Tessa provided an overview of the big picture of carbon in the atmosphere, how it is measured, how it has increased, and explained how that is changing ocean chemistry. She focused on the California Current system, and noted photosynthesis causes seasonal variations in ocean pH. In 2016, we are at about the 400 ppm mark of CO₂, and we probably will not see concentrations fall below that level.
- The ocean is a tremendous sponge for CO₂. About a third of CO₂ in the atmosphere goes into the ocean. We cannot stop this process. CO₂ is increasing in the ocean; this makes the ocean more acidic. This impacts marine species in a variety of ways, as they evolved over a long time with previously only small changes in CO₂. For example, organisms that make shells are reliant upon stable water chemistry, and altered water chemistry makes it more challenging to make the shells. Shells dissolved as a mechanism for rebalancing the carbonate ion in the ocean.
- She reviewed how water and nutrients are transported and upwelled on the California coast. In wind-driven upwelling, old water that has been in the ocean a long time and is naturally acidic is brought up to the surface. This water contains lots of nutrients and drives the food web productivity. We are now adding the human fingerprint of CO₂ on top of that process. Deep sea and shallow water organisms in our area are already living in a very stressful environment. In 2050, one model predicts the low pH (less than 7.5) for everywhere along the California Current system in the top 100 meters of the water, probably for over 50% of the year.
- For Cordell Bank, the surface flow of upwelled plume of water and conditions at depth will impact it.
- Brendan Roark, of Texas A&M, collected data across three lines and additional water samples for carbon across Cordell Bank in 2010. His results are not published, but the data show lower pH values in

waters closer to shore, and in more acidic waters farther offshore at depth. The water trapped at depth at about 1000 m water was over 1000 years old; over that time, it accumulated the products of respiration and there was no photosynthesis to remove it. Thus, the deep ocean is a source of acidification, and the upwelling brings it up to the surface. When upwelled, other older water moves in at depth to replace it.

- Aragonite levels affect when shells will be built or dissolve.
- Oxygen gets used up at depth due to organisms breathing and the breakdown of organisms after they die and decay. This is part of the natural system.
- Cordell Bank sits in an area already naturally acidic, and the organisms living on it likely evolved in stable acidic conditions. Things that might be at higher risk from acidification include corals, echinoderms and mollusks; species at lower risk or for which the risk is unknown include crabs, barnacles, sponges and octopus. Know little about how deep sea fish might respond.
- Jim Barry and colleagues at the Monterey Bay Aquarium Research Institute have done work on deep sea urchins. The urchins increase amount of time they spend looking for food in acidic conditions and their physiology changes. Though no one has looked at deep water species of brittle stars, Karen Chan and colleagues found in acidic conditions, in the larval stage, they experienced decreased growth and increased mortality.
- Other scientists (Cordes et al) studied deepwater corals around the world and found *Lophelia pertusa* (not found on Cordell Bank, but one of the only deep corals they have kept alive in the lab), had decreased calcification and growth rates under reduced pH condition, and their calcification rate decreased along with their growth rates over the long term. Increased mortality occurred in conditions of warming temperatures and decreasing oxygen.
- There is very limited information so far to make predictions for CBNMS.
- The Bodega Ocean Acidification Research Group has focused on species that are widely distributed along the West Coast, and has done experiments with them at elevated pH levels.
- Tessa brought copies of a West Coast Ocean Acidification and Hypoxia Science Panel report published in April, and explained a bit about the panel's work.

Public Comment

- Tom Lambert commented about a video he had seen with sea lion pups being harassed by drones. He wondered how they could be stopped from flying over the sanctuaries and from harassing marine mammals or seabirds.
- George and Jaime Jahncke described briefly that they are part of a working group of the Greater Farallones National Marine Sanctuary Advisory Council looking at expanding areas with low overflight restrictions within that sanctuary. Drones are subject to the low overflight restrictions. Some feel an ONMS-wide response on this is needed. Enforcement would need to be considered. CBNMS does not have any low overflight restrictions.

Cordell Marine Sanctuary Foundation (CMSF) Update (Tom Lambert)

- Tom explained CMSF is a nonprofit organization that raises money for CBNMS programs; he was filling in for Bob VanSyoc, currently doing research in the Philippines for the California Academy of Sciences.
- The Board of Directors approved funding for the hypoxia mooring study for this year.
- CMSF has postcards with a qr code that connects users with the CMSF website. CMSF hopes to generate donations through the website.

Members' and Alternates' Reports (advisory council)

Tessa: Sent some research links to Lilli to send to the group, on: a November conference on deep sea research and finding creative approaches to pressing global deep sea challenges; a climate webinar next week on blue carbon and using coastal habitats as a climate change mitigation strategy; and the West Coast Ocean Acidification and Hypoxia Science Panel report just came out. She also mentioned two papers of interest from her graduate student which will come out soon.

Jaime: The Whale Alert tool has been broken since an iOS 9 [Apple mobile operating system] update. There were three blue whales in March; none in April. The ACCESS report for 2015 is almost done. There have been record sightings of killer whales recently. Also, there are a huge number of crab pots out now, at the time whales are expected to begin their migration; he is working on outreach about that. The Fourth Ocean Climate Summit is planned for mid May, and ACCESS work will be presented at that meeting. Several papers came out recently, regarding fish and cormorants, albatrosses, and hot spots for resident seabirds.

Rachel Bergren: There are 233 patients at The Marine Mammal Center, which is reaching capacity. Many are California sea lions. They have more northern elephant seal pups on site than ever before in their history.

Lance Morgan: Discussed a variety of topics, including updates about sharks in central and southern California and bycatch of sea turtles, etc. At an Ocean Sanctuary Alliance meeting in Rome, he met with scientists from about 45 countries on the value of MPAs and other topics. He is involved in new biodiversity agreement being negotiated under the Law of the Sea convention. If agreed upon, it is possible work may proceed to set up a high seas MPA, which perhaps could be in place by 2020 or so. He will attend the Marine Congress, in St Johns, Newfoundland this summer. Finally, his organization is a finalist for possibly receiving a Global Ocean Refuge award, for a start-up idea project to establish a global system of protected areas with an “eco label” (along the lines of a Leadership in Environmental Energy and Design certification).

Bill Wolpert: The first draft of the climate action plan for Sonoma County came out last month. The summaries are a good compilation of all the issues the county is facing at all levels. There are goals and strategies for things like the built environment, transportation, water resources, solid waste, and agriculture. From what he read, he did not see a deep look on climate change effects that could be positive, such as warmer climate effects on agriculture, or less energy needed to heat buildings in the winter. He will provide Lilli with the link to the document to send out. There was no extensive treatment of sea level rise, but there was some information about impacts and about holding off development in areas at risk from rising sea level.

George: The Marin County supervisory just amended the Local Coastal Plan section that deals with sea level rise along the ocean coast; information is at Marinlcp.org

Sarah: Reported that the California Coastal Commission met last Wednesday; and after lots of testimony against State Parks fees, the Commission decided to hold off on a decision. This gives people more time to delve into the issue of State Parks funding shortfalls. NOAA Administrator Kathryn Sullivan, Ph.D., was at Bodega Marine Laboratory to learn about the white abalone captive species breeding program. It is the first marine invertebrate on the endangered species list. On June 6, she will be speaking about ACCESS sampling stations and her findings over 8 years regarding larvae, particularly crab and shrimp, including how their abundance and distribution in the ocean changes over time and with different conditions.

John Berge: There has been a push to incorporate greenhouse gases into the Paris accords; these had been essentially exempted up until now. Shipping gases contribute about 2-3 % overall. The easiest strategy could be to slow ships down to their best economic speeds, which could have benefits to whales. Shipping is the most efficient way to move goods across the ocean. In California, starting last year, Governor Brown started a sustainable freight initiative, addressing greenhouse gases for trucks, rail, air and shipping. It is a joint venture of the State Air Resources Board, the Department of Housing & Community

Development, Caltrans, Business and more. A draft action plan may be released in the next month. There is a focus to get to near zero freight transportation emissions around 2030 and to zero around 2050.

Dick Ogg: The crab season started, and people have been crabbing hard over the last three weeks. A main concern of the fishermen is the amount of crab gear in the water. They are already seeing whale entanglement and are concerned about that. Traps are spread in the range of 10 – 80 fathoms. The crabs are in good shape. They are at edge of getting ready to mate. The crab season was opened based on one clean test, and originally, the protocol was to have two clean tests. Salmon season has been set to open May 5 and go for three weeks in May and two weeks in June. It is not looking productive.

Noah Wagner: Added the fishermen had been told the crab fishing areas would open at the same time, and that there would be outreach on when the crabs were safe to eat; fishermen are frustrated since this did not happen. Abalone and rockfish fishing is going on.

George adjourned the meeting at 12:41 PM.